End-to-end IP Live production platform

It consists of Multi-layered software plus IP Live production products.
End-to-end IP Live production platform

All you need is IP connectivity, and an end-to-end IP Live production platform backed by an appropriate layered architecture.

- **Facility Management**
  - Live workflow centric configuration and monitoring
  - Unified device configuration and monitoring (incl/3rd parties)
    - Panel, RCP assignment etc.

- **Broadcast Controller**
  - Routing, Tally and Name management
  - Logical, physical matrix management

- **Orchestration and SDN Control**
  - Network configuration
  - SDN flow control and its monitoring

**Ultimate customizability and its agility for satisfying any business requirements**

**No vendor proprietary flavors, and be stick on standards (e.g. JT-NM TR1001-1, AMWA NMOS)**

**Promising future network scalability and solid resiliency, and vendor neutrality**
Application Example

• Efficient workflow can be realized even for the single OB Truck or Studio
• Change the system format for different program with less engineering effort
• Device and PTP monitoring to stabilize the operation
Application Example – Multiple Studios

- Production can be more efficient by sharing the control room and processor resources among multiple studios.
- Facility management system can recall the preset to reallocate the resources with single button operation.
Application Example – OB Truck

- It provides very simple and efficient operation when OB Truck needs to change its configuration for the next event
- Minimize the cost of system change, and increase the utilization rate

Live Sports → HD

FMS on COTS server

Software or Hardware operation panel

Live Element Orchestrator

4K

BC Studio
Routing Control

Routing control is one of the core functions of the live production system. It should be able to control 3rd party’s routing system, both IP and SDI, by different protocols.

- Select destination and source to change the cross-point

Facility Management System

FMS orders a routing control to the external routing system

Routing Control

IP Routing Application

IP Matrix

MKS-R4020
Simple Operation for Complex Work

- Changing the system setting requires lots of manpower to work.
- Once pre-setting is configured in LEO, the operator just needs to press the button to make the change.
- Any simple and complex setting can be assigned to the hardware panel and GUI.

Press button to recall the preset.
Adjust System Camera’s Parameter

- Some of the latest camera systems, parameter can be adjusted from the panels and display
- The operation from the hardware panel provides quick access for the frequently adjusted parameter such as HDR and Mic Gain
- With the display for each encoders, operator can easily identify the value adjusted
Monitoring Feature – PTP Topology

- Monitoring PTP status is one of the crucial things to keep the IP Live production system stable.
- It is most important for operator to recognize and identify the issue happened in the system soon as possible.
- FMS can gather all the related status information across the multiple devices such as PTP grand master, Network Switch and end devices.
- FMS can visualize in any way operator wants to see, and keep showing the status up to date.
Monitoring

› Create Template (Device, Model)
  › Select monitoring parameter
  › Set threshold
  › Severity setting

› Monitoring Features
  › Connection status between LEO
  › Device information (model name, serial number, etc)
  › Device status (temp, Fan, CPU, memory, etc)
  › Alarm masking

› History of alarms

› Trending (device by device)
  › Turn On trending feature
  › Select monitoring parameter
  › Show graph
What a Facility management system can do?

Software Panel Manager

Function assignable from software to the panel

Facility Management System

Key Features
- 40 LCD Buttons in 1RU
- Control Panel for LEO & LSM
- Function assignable from LEO
- Redundant network and power

Hardware Panels

Key Features
- 16 Rotary Encoders & LCD in 1RU
- Control Panel for LEO
- Ideal for parameter adjustment
- Function assignable from LEO
- Redundant network and power

MV Layout

Multi-viewer

What a Facility management system can do?

- RCP Assign
- Monitor Input A
- HDR Gain
- Black Adjustment

Function assignable from software to the panel

Software Panel Manager

Function assignable from software to the panel

Facility Management System

Key Features
- 40 LCD Buttons in 1RU
- Control Panel for LEO & LSM
- Function assignable from LEO
- Redundant network and power

Hardware Panels

Key Features
- 16 Rotary Encoders & LCD in 1RU
- Control Panel for LEO
- Ideal for parameter adjustment
- Function assignable from LEO
- Redundant network and power

MV Layout

Multi-viewer

What a Facility management system can do?

- RCP Assign
- Monitor Input A
- HDR Gain
- Black Adjustment

Function assignable from software to the panel

Software Panel Manager

Function assignable from software to the panel

Facility Management System

Key Features
- 40 LCD Buttons in 1RU
- Control Panel for LEO & LSM
- Function assignable from LEO
- Redundant network and power

Hardware Panels

Key Features
- 16 Rotary Encoders & LCD in 1RU
- Control Panel for LEO
- Ideal for parameter adjustment
- Function assignable from LEO
- Redundant network and power

MV Layout

Multi-viewer

What a Facility management system can do?
Sharing “production control room” across studios

All configuration can be changed instantly before production including controls, routing and tally etc.

Shared Production

4K Studio

Control Room

HD Studio

ST2110 4K Sources

ST2110 HD Sources

Machine Room

Solution

• Change control relationship by using FMS
• Change IP routing by using IP control & SDN
• Change configuration (layout etc) by using FMS

Benefits

• Sharing a control room from any studios.
• Maximize utilization rate of facilities.
• Minimize the number of control rooms.
Sharing “production control room” across studios

All configuration can be changed instantly before production including controls, routing and tally etc.

Benefits
- Sharing a control room from any studios.
- Maximize utilization rate of facilities.
- Minimize the number of control rooms.

Solution
- Change control relationship by using FMS
- Change IP routing by using IP control & SDN
- Change configuration (layout etc) by using FMS

Shared Production

<table>
<thead>
<tr>
<th>4K Studio</th>
<th>Machine Room</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ST2110 4K Sources</td>
</tr>
</tbody>
</table>

Control Room

<table>
<thead>
<tr>
<th>HD Studio</th>
<th>Machine Room</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ST2110 HD Sources</td>
</tr>
</tbody>
</table>
Sharing “production control room” across studios

All configuration can be changed instantly before production including controls, routing and tally etc.

Solution

- Change control relationship by using FMS
- Change IP routing by using IP control & SDN
- Change configuration (layout etc) by using FMS

Benefits

- Sharing a control room from any studios.
- Maximize utilization rate of facilities.
- Minimize the number of control rooms.
The solution templates of end-to-end IP Live production

IP Live enables us to offer various kinds of solutions for optimized your workflow efficiency.

Remote Production

Shared Production (In-facility)

Shared Production (Inter-facilities)

Shared Production (OBVANs)
High quality live production from anywhere

IP Live brings innovation to **sports**, **entertainment** and **news** production workflow:

**Remote Production**
- Minimizing on-site equipment & staff
- Reducing production costs
- Increasing productivity

**Shared Production**
- Maximizing facilities utilization
- Flexibility in studio/control room combination
- Dynamic resource assignment

Remote Sites | Studios | Control Rooms | Machine Rooms

- Fewer production staff needed on remote-sites or local stations
- Production staff can produce more than one event/show on the same day without travel
- Best available production staff can collaborate across locations
- Studios, control rooms and data center can be shared within and across locations
- More effective and efficient use of production resources